

UNITED STATES PATENT OFFICE.

THOMAS F. GAYNOR, OF LOUISVILLE, KENTUCKY, ASSIGNOR TO THE
GAYNOR ELECTRIC COMPANY, OF SAME PLACE.

BELL-STRIKING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 411,804, dated October 1, 1889.

Application filed June 6, 1889. Serial No. 313,397. (No model.)

To all whom it may concern:

Be it known that I, THOMAS F. GAYNOR, of Louisville, in the county of Jefferson and State of Kentucky, have invented a new and
5 useful Improvement in Bell-Striking Apparatus, which improvement is fully set forth in the following specification, reference being had to the accompanying drawings.

My invention relates to the striking apparatus for bells of fire-alarms, fog-alarms, tower-clocks, &c.; and it consists of a hammer attached to a hammer-lever, which lever is fitted on a pivot-shaft having its bearings in two standards mounted on a suitable base-plate, by which the striker is secured in proper
15 position with reference to the bell to be struck.

My invention further consists in providing a double spring adjustment by means of which the moving parts of the apparatus can be properly balanced and controlled while in the different positions which they assume when in operation, all of which I accomplish by the mechanism illustrated in the accompanying drawings, in which—

25 Figure 1 shows a front elevation of so much of the striking apparatus as serves to illustrate my invention. Fig. 2 shows an end elevation of the parts of the striker shown in Fig. 1, one disk and one standard being removed. Fig. 3 shows part of the bell in position to be struck by the apparatus. Fig. 4 represents an end view of an adjusting-disk in position upon its standard, which is mounted upon the base-plate. Fig. 5 shows the disk detached from its standard. Fig. 6 shows a front view of the disk with the spring-adjusting bolt in position therein. Fig. 7 shows a front view of a standard mounted upon a base-plate, the adjusting-disk being removed.
30 Fig. 8 shows an end view of Fig. 7, showing adjusting-slot and adjusting-screw in position therein. Fig. 9 represents an end view of an adjusting-spring. Fig. 10 shows an end view of an adjusting-lever. Fig. 11 shows a side view of Fig. 10. Fig. 12 shows a front view of a modification of my invention in which the adjusting-disk is dispensed with. Fig. 13 shows the adjusting-bolt and the spring-bolt combined, its washer and nuts separated
45 therefrom.

Similar letters refer to similar parts throughout the several views.

A represents the hammer, which is secured to a hammer-lever B by means of a thread *a* and nut *b*. The lower part of the lever B is enlarged and provided with a hub C, having a hole which fits the pivot-shaft D, and is secured thereto by means of a screw *c*. The lever B has an arm E, which extends at a right angle with reference to said lever B, thus making a lever of a bell-crank shape. The arm E has holes S S, by which the proper connection and adjustment can be made with the machine by which the power is furnished which operates this apparatus. Such machine may be of any well-known construction, or it may be of the form shown in my application of even date herewith for Letters Patent for an improvement in electro-mechanical bell-striking machines, Serial No. 313,398.
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D represents the pivot-shaft, having its bearings in standards F, which bearings are of a smaller diameter than the body of the shaft, thus securing the shaft against any lost end motion.
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G and G' represent adjusting-disks, each having a central hole *d*, which fits upon a projecting hub *e* of the standards F F'. (See Figs. 7 and 8.) Each of the disks G G' is also provided with an adjusting threaded hole *f*, into which an adjusting-bolt *g* is fitted. The adjusting-disks G G' are also each provided with holes *h h*, into which the adjustment-lever H is fitted, and by means of which the proper adjustment can be made upon the spring when the adjusting-bolt *g* is loose. The adjusting-bolts *g g'*, when tightened, also secure the adjusting-disks G G' to their standards. The adjusting-disks G G' are also provided with threaded holes *i i*, into which the spring-bolts *j j'* fit, and by means of which the looped ends *k k'* of adjusting-springs I I' may be secured to the adjusting-disks G G'.
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Each of the standards F F' has a semicircular adjusting-slot *l*, (see Fig. 8,) which allows the disk, with its adjusting-bolt, to be moved around upon the hub *e* of its standard. When the desired tension is obtained upon the spring, the adjusting-screw is tightened, thus securing the adjusting-disk which carries
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adjustment in the adjusting-slots in said standards, substantially as specified.

3. In a bell-striking apparatus, the combination of an angle-shaped hammer-lever to one end of which a hammer is secured, said lever being provided with a spring-pin, and being also provided with a pivot-shaft, two spiral springs, each provided with a loop end and a straight end, the latter being adapted to impinge against the spring-pin aforesaid, and being arranged axially upon the aforesaid pivot-shaft, two adjusting-disks, each of which is provided with a spring-bolt hole, adjusting-bolt holes, and a central bearing-hole, spring-bolts adapted to secure the spiral tension-springs through their looped ends to the aforesaid disks through the bolt-holes therein, a base-plate having two standards secured thereto, each of which is provided with a bearing for the aforesaid pivot-shaft, and which is also provided with a hub-bearing adapted to fit the central bearing-hole of one of the aforesaid disks, and each of which is also provided with a concentric adjusting-bolt-hole slot, two adjusting-bolts, one of which extends through the slot in one of the aforesaid standards, and the other bolt similarly arranged with the other standard, and by means of which one of the aforesaid disks is adjustably secured to said standard, and an adjusting-lever adapted to fit holes in the peripheries of said adjusting-disks, substantially as specified.

4. In a bell-striking apparatus, the combination of an angle-shaped hammer-lever to one end of which a hammer is secured, and

being provided with a pivot-shaft, two adjusting tension-springs, a base-plate having two standards, each of which has a bearing for the aforesaid pivot-shaft and also a concentric adjusting-slot, and two combined spring and adjusting bolts, one of which is adapted to adjustably secure the outer end of one of the aforesaid tension-springs through the concentric slot in one of the said standards to such standard, and the other to similarly secure the other spring, substantially as specified.

5. In a bell-striking apparatus having a hammer-lever to which a hammer is secured, and provided with a pivot-shaft, which shaft is mounted in two bearing-standards, in combination therewith, two spiral hammer-lever springs arranged axially around said pivot-shaft, and which are provided with a radial bolt adjustment upon said standards, substantially as specified.

6. In a bell-striking apparatus having a hammer-lever to which a hammer is secured, and provided with a pivot-shaft, which shaft is mounted in two bearing-standards, in combination therewith, two spiral hammer-lever springs arranged axially around said pivot-shaft, the outer end of each of which projects outwardly from the shaft, so as to admit of being secured to an adjusting-disk having an adjustable-bolt connection with a standard, substantially as described.

T. F. GAYNOR.

Witnesses:

E. H. STEPHENS,
T. F. O'BRIEN.



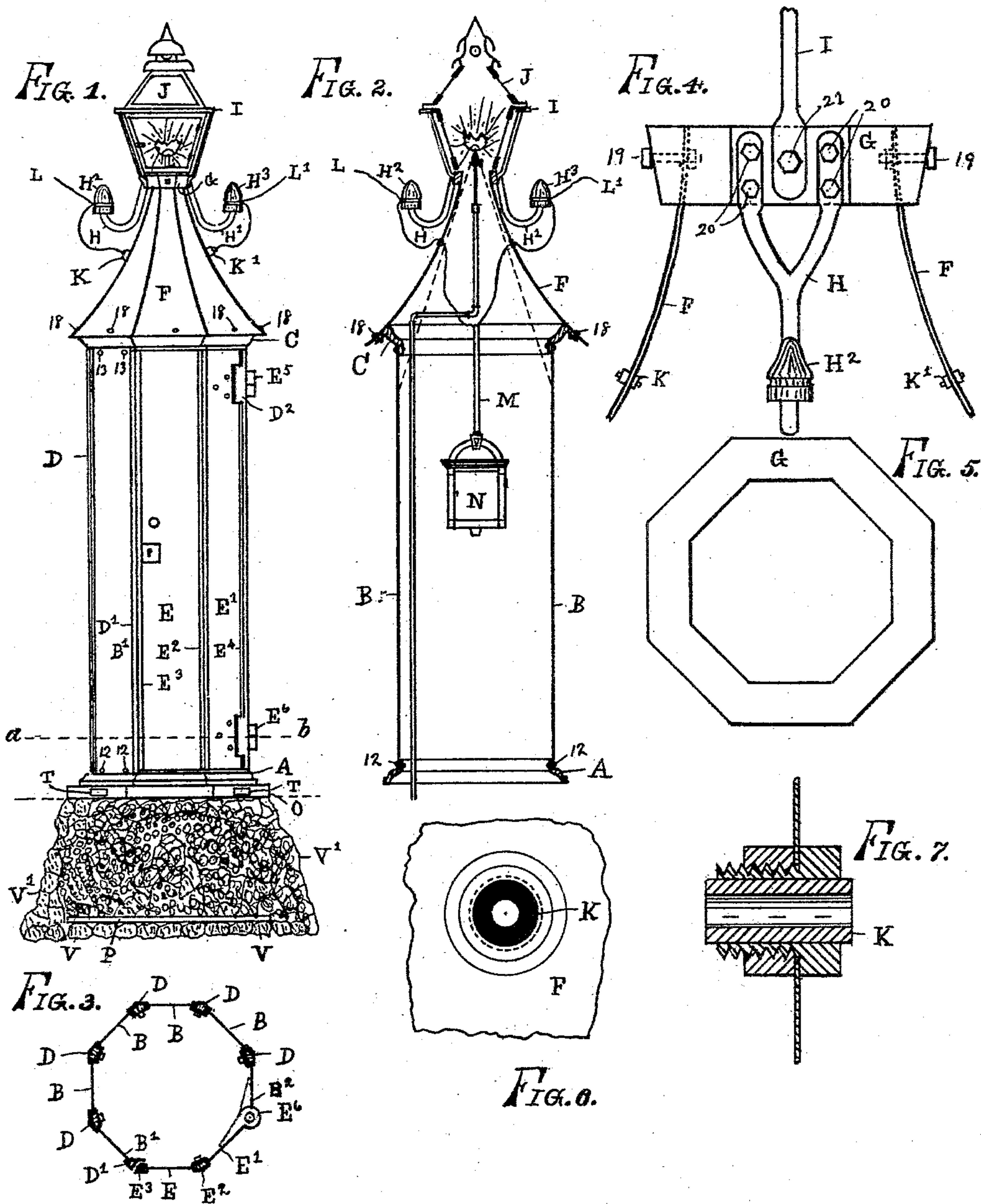
(No Model.)

2 Sheets—Sheet 1.

T. F. GAYNOR.
BOOTH FOR SIGNALING PURPOSES.

No. 411,805.

Patented Oct. 1, 1889.



WITNESSES.

E. H. Stephens.

T. F. O'Brien

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